ANDREW OLAF (OLE) SHELTON
Research Fisheries Biologist
Conservation Biology Division
Northwest Fisheries Science Center,
2725 Montlake Blvd, Seattle, WA 98112, 206-860-3209
ole.shelton@noaa.gov

I am a citizen of the United States and registered for the Selective Service.

EDUCATION

University of Chicago, 9/2003 – 3/20/2009. **MS: 4/25/2005. Ph.D: 3/20/2009**
Department of Ecology and Evolution. Advisor: Dr. Cathy Pfister
Dissertation: *Persistence in foundation seagrasses: genetics, demography and community effects.*

Brown University, B.A. Biology, Honors. *9/1997 – 5/2002.*
Honors thesis topic: Age determination and growth of the red sea urchins in southeast Alaska.

POSITIONS HELD

Research Fisheries Biologist. Conservation Biology Division. Northwest Fisheries Science Center. Pay Grade, Step: ZP 04, 01. Supervisor: Dr. Jameal Samhouri. 1*/19/2017 – present*

Research Ecologist. Earth Resources Technology Inc. Contracted to Conservation Biology Division. Northwest Fisheries Science Center. *4/11/2016 – present.*
Major tasks included:

- Lead studies identifying fish habitat and implementation of ecosystem management.
- Lead studies on life-history and population dynamics of Pacific Salmonids.

Research Fisheries Biologist. Conservation Biology Division. Northwest Fisheries Science Center. Pay Grade, Step: ZP 03, 03. Supervisors: Dr. Phil Levin and Dr. Jameal Samhouri. *4/9/2012 – 4/8/2016.*
Major tasks included:

- Design and implement scientific field studies and laboratory experiments on fish and invertebrates.
- Lead development and implementation of complex Bayesian statistical models, including applications to analyses of essential fish habitat, critical habitat, and fisheries.
- Lead the design and application of surveys and field experiments using SCUBA and fishing equipment in marine habitats.
- Provide scientific advice to policy makers through reports, technical advisory committees, and peer reviewed scientific publications in professional journals.

Post-doctoral scholar in Bayesian fisheries methods and applications. Department of Applied Mathematics and Statistics and Center for Stock Assessment Research, University of California, Santa Cruz. Supervisor: Dr. Marc Mangel. *(8/2009 – 3/2012).*

Research Technician.

Hopkins Marine Lab, Stanford University

Effects of marine protected areas on red and black abalone. 8/*2002-8/2003*. Supervisor: Dr. Fiorenza Micheli.

Alaska Department of Fish and Game, Commercial Fisheries Division, Douglas, Alaska

Fisheries Technician - *Summers 2000-2002.*

Research SCUBA diver in Southeast Alaska. Small boat operating experience in open ocean conditions including rough seas and high seas.

Fisheries Technician - *Summers 1998-1999.*

Sockeye salmon stock assessment for fisheries management in SE Alaska. Extensive experience working in open ocean conditions including rough seas and high winds.

Commercial Fishing Crewman, F/V Kirsten Anna, Juneau, Alaska

Crew for commercial salmon, halibut, and herring fisheries. Includes experience small and large boats in all ocean conditions and operating commercial salmon fishing gear. Seasonal and intermittent employment, *1987-present*.

GRANTS, FELLOWSHIPS, AND AWARDS

Advanced Sampling Technology Working Group (NOAA) 2015-17 (*$225,000*). "Improving techniques for estimating abundance and habitat use in nearshore marine habitats using environmental DNA." PIs: A.O. Shelton, R. Kelly, C. Greene, L. Park.

Habitat Assessment Improvement Plan (NOAA) 2012-13 (*$55,769*) "Integrating spatial habitat and fisheries effort data to improve abundance estimates of west coast groundfish" PIs: A.O. Shelton, E. Ward, J. Thorson, M. Bellman, B. Feist.

National Science Foundation Graduate Research Fellowship *2003-2006 (~$120,000)*

University of Chicago Hinds Fund *2007 ($1200)*

University of Chicago Hinds Fund *2005 ($2000)*

PUBLICATIONS (Peer-reviewed)

1. Shelton, A.O., D.A. Woodby, K. Hebert, and J. Witman. 2006. Age determination and spatial patterns of growth of the red sea urchin (*Strongylocentrotus franciscanus*) in southeast Alaska. Transactions of the American Fisheries Society 135:1670-1680.
2. Micheli, F., A.O. Shelton, S.M. Bushinsky, A.L.Chiu, K.W. Heiman, C.V. Kappel, M.C. Lynch, and J. Watanabe. 2008. Persistence and recovery of depleted marine invertebrates in marine reserves of central California. Biological Conservation 141:1078-1090.
3. Shelton, A.O. 2008. Skewed sex ratios, pollen limitation, and reproductive failure in the dioecious seagrass genus *Phyllospadix.* Ecology 89:3020-3029.
4. Shelton, A.O. 2010. The ecological and evolutionary drivers of female-biased sex ratios: two-sex models of a perennial seagrass. American Naturalist 175:302–315.
5. Shelton, A.O. 2010. The origin of female-biased sex ratios in intertidal seagrasses (*Phyllospadix* spp.*)* Ecology 91:1380–1390.
6. Shelton, A.O. 2010. Environmental and community consequences of foundation species: surfgrass (*Phyllospadix* spp.) in tidepools. Journal of Experimental Marine Biology and

Ecology. 391:35–42.
7. Shelton, A.O. and M. Mangel. 2011. Fluctuations of fish populations and the magnifying effects of fishing. Proceeding of the National Academy of Sciences (USA) 108:7075-7080.
8. Ma, L., M.L. Stein, M. Wang, A.O. Shelton, C.A. Pfister, and K.J. Wilder. 2011. A method for unbiased estimation of population abundance along curvy margins. Environmetrics 22:330-339.
9. Shelton, A.O. and M. Mangel. 2011. Response to Sugihara et al.: The biology of variability in fish populations. Proceedings of the National Academy of Sciences (USA) 108:E1226.
10. Shelton, A.O., E.J. Dick, D. Pearson, S. Ralston, and M. Mangel. 2012. Single-species landings and uncertainty estimates from multi-species fisheries landings data: hierarchical Bayesian models for California groundfish fisheries. Canadian Journal of Fisheries and Aquatic Sciences. 69:231-246.
11. Shelton, A.O., S.B. Munch, D. Keith, and M. Mangel. 2012. Maternal age, fecundity, egg quality, and recruitment: linking stock structure to recruitment using an age-structured Ricker model. Canadian Journal of Fisheries and Aquatic Sciences. 69: 1631–1641
12. Shelton, A.O. and M. Mangel. 2012. Estimating von Bertalanffy parameters with individual and environmental variation in growth. Journal of Biological Dynamics. 6(sup2):3-30.
13. Shelton, A.O., W.H. Satterthwaite, M.P. Beakes, S.B. Munch, S. Sogard, and M. Mangel. 2013. Individual variation in growth and its population consequences: separating intrinsic and environmental contributions. American Naturalist 181:799-814
14. Shelton, A.O., D. Kinzey, C. Reiss, S. Munch, G. Watters, and M. Mangel. 2013. Among-year variation in growth of Antarctic krill (*Euphausia superba*) based on length-frequency data. Marine Ecology Progress Series 481:53-67
15. A.-M. K. Osterback, D.M. Frechette, A.O. Shelton, S.A. Hayes, M.H. Bond, S.A. Shaffer, J. W. Moore. 2013. High predation on small populations: avian predation on imperiled salmonids. Ecosphere 4:art116. http://dx.doi.org/10.1890/ES13-00100.1
16. Shelton, A.O., J.T. Thorson, E.J. Ward, B.E. Feist. 2014. Spatial, semi-parametric models improve estimates of species abundance and distribution. Canadian Journal of Fisheries and Aquatic Sciences 71:1655-1666.
17. Shelton, A.O., T.B. Francis, G.D. Williams, B. Feist, K. Stick, and P.S. Levin. 2014. Habitat limitation and spatial variation in Pacific herring egg survival. Marine Ecology Progress Series 514:231–245.
18. Lynch, H.J, J.T. Thorson, and A.O. Shelton. 2014. Dealing with under- and over-dispersed count data in life history, spatial, and community ecology. Ecology 95:3173–3180. http://dx.doi.org/10.1890/13-1912.1
19. Shelton, A.O., J.F. Samhouri, A.C. Stier, and P.S. Levin. 2014. Assessing trade-offs to inform ecosystem-based fisheries management of forage fish. Scientific Reports 4:7110 DOI: 10.1038/srep07110
20. Thorson, J.T., J. Cope, K. Kleisner, J.F. Samhouri, A.O. Shelton, and E.J. Ward. 2015. Giants' shoulders 15 years later: Lessons, challenges, and guidelines in fisheries meta-analysis. Fish and Fisheries 16:342-361

21. Thorson, J.T., H. Skaug, K. Kristensen, A.O. Shelton, E.J. Ward, J. Harms, and J. Benante. 2015. The importance of spatial models for estimating the strength of density dependence. Ecology 96:1202-1212
22. Shelton, A.O., J. Hutchings, D. Keith, R. Waples, H.R. Akçakaya, and N. Dulvy. 2015. Maternal age effects on Atlantic cod recruitment and implications for future population trajectories. ICES Journal of Marine Science 72:1769-1778. *doi: 10.1093/icesjms/fsv058*
23. Thorson, J.T., A.O. Shelton, E.J. Ward, and H. Skaug. 2015. Geostatistical delta-generalized linear mixed models improve precision for estimated abundance indices for West Coast groundfishes. ICES Journal of Marine Science. *72 (5): 1297-1310. doi: 10.1093/icesjms/fsu243*
24. Thorson, J.T., M. Scheuerell, A.O. Shelton, K. See, H. Skaug, and K. Kristensen. Spatial factor analysis: a new tool estimating multispecies spatial distributions and correlated ranges. 2015. Methods in Ecology and Evolution 6:627-637. doi : 10.1111/2041-210X.12359
25. Keith, D., H.R. Akçakaya, S.H.M. Butchart, B. Collen, N.K. Dulvy, E.E. Holmes, J.A. Hutchings, D. Keinath, M.K. Schwartz, A.O. Shelton, and R.S. Waples. 2015.Temporal correlations in population trends: conservation implications from time-series analysis of diverse animal taxa. Biological Conservation 192:247–257. http://dx.doi.org/10.1016/j.biocon.2015.09.021.
26. Ward, E.J., J.E. Jannot, Y-W Lee, K. Ono, A.O. Shelton, and J.T. Thorson. 2015. Using spatiotemporal species distribution models to identify temporally evolving hotspots of species co-occurrence. Ecological Applications. 25: 2198–2209.
27. Tolimieri, N.T., A.O. Shelton, B.E. Feist, and V. Simon. 2015. Can we increase our confidence about the locations of biodiversity “hotspots” by using multiple diversity indices? Ecosphere 6:290.
28. Ono, K., A.O. Shelton, E.J. Ward, J.T. Thorson, B.E. Feist, and R. Hilborn. 2016. Space-time investigation of the effects of fishing on fish populations. Ecological Applications 26:392-406. DOI: 10.1890/14-1874
29. Shelton, A.O., J.L. O’Donnell, J.F. Samhouri, N. Lowell, G. Williams, and R.P. Kelly. 2016. A framework for inferring biological communities from environmental DNA. Ecological Applications 26:1645-1659.
30. Micheli, F., K.W. Heiman, C.V Kappel, R.G. Martone, S.A. Sethi, G.C Osio, S. Fraschetti, A.O. Shelton, J.M. Tanner. 2016. Combined impacts of natural and human disturbances on rocky shore communities. Ocean and Coastal Management 126:42-50
31. Kelly, R.P., J.L. O'Donnell, N.C. Lowell, A.O. Shelton, J.F. Samhouri, S.M. Hennessey, B.E. Feist, and G.D. Williams. 2016. Genetic signatures of ecological diversity along an urbanization gradient. PeerJ 4:e2444 **https://peerj.com/articles/2444/**
32. Shelton, A.O., T. Francis, B.E. Feist, G.D. Williams, A. Lindquist, and P. Levin. 2017. Forty years of seagrass population stability and resilience in an urbanizing estuary. Journal of Ecology 105:458-470.
33. Kelly, R.P., C.J. Closek, J.L. O'Donnell, J.E. Kralj, A.O. Shelton, J.F. Samhouri. 2017. Genetic and manual survey methods yield different and complementary views of an ecosystem. Frontiers in Marine Science. 3:283 **https://doi.org/10.3389/fmars.2016.00283**

34. O'Donnell J.L., R.P. Kelly, A.O. Shelton, J.F. Samhouri, N.C. Lowell, and G.D. Williams. 2017. Spatial distribution of environmental DNA in a nearshore marine habitat. PeerJ 5,e3044 **https://peerj.com/articles/3044/**
35. Barnett , L.A.K., S.M. Hennessey, T.E. Essington, A.O. Shelton, B.E. Feist, T.A. Branch, M.M. McClure. 2017. Getting to the bottom of fishery interactions with living habitats: spatiotemporal trends in disturbance of corals and sponges on the US west coast. Marine Ecology Progress Series 574:29-47.
36. Anderson, S.C, E.J. Ward, A.O. Shelton, M.D. Adkison, A.H. Beaudreau, R.E. Brenner, A.C.Haynie, J.C. Shriver, J.T. Watson, and B.C. Williams. Benefits and risks of diversification for individual fishers. 2017. Proceedings of the National Academy of Sciences USA. 114:10797–10802. doi: 10.1073/pnas.1702506114.
37. Chasco, B., I. Kaplan, A.C. Thomas, A. Acevedo-Gutiérrez, D Noren , M.J. Ford, M.B. Hanson , Mr. J. Scordino , S. Jeffries, K.N. Marshall, A.O. Shelton, C. Matkin, B. Burke, E.J. Ward. 2017. Competing tradeoffs between increasing marine mammal predation and fisheries harvest of Chinook salmon. Scientific Reports. 7: 15439. doi:10.1038/s41598-017-14984-8.
38. Shelton, A.O., M.E. Hunsicker, E.J. Ward, B.E. Feist, R. Blake, C.L. Ward, B.C. Williams, J.T. Duffy-Anderson, A.B. Hollowed, A.C. Haynie. 2018. Spatio-temporal models reveal subtle changes to demersal communities following the Exxon Valdez oil spill. ICES Journal of Marine Science (2018), 75(1), 287–297. doi:10.1093/icesjms/fsx079.
39. Siple, M., A.O. Shelton, T. Francis, D. Lowry, A. Lindquist, T. Essington. 2018. Contributions of adult mortality to declines of Puget Sound Pacific herring. ICES Journal of Marine Science. 75:319-329. **https://doi.org/10.1093/icesjms/fsx094**
40. Ebert, T.A et al. Size growth and density data fro shallow-water sea urchings from Mexico to the Aleutian Islands, Alaska 1956-2016. Ecology 99:761-761.

In Press

41. Ward, E.J., S.C. Anderson, A.O. Shelton, R. Brenner, J. Watson, J.C. Shriver, A.H. Beaudreau, A.C. Haynie, M. Adkison, B. Williams. 2018. Effects of increased specialization and hatchery production on revenue variability of Alaskan salmon fishers. Journal of Applied Ecology. doi: 10.1111/1365-2664.13058
42. Shelton, A.O., W.H. Satterthwaite, E.J. Ward, B.E. Feist, and B. Burke. Hierarchical models reveal stock-specific and seasonal variation in ocean distribution, survivorship, and aggregate abundance of fall run Chinook salmon. Canadian Journal of Fisheries and Aquatic Sciences

In Review/Revision

43. Samhouri, J.F., A.O. Shelton, G.D. Williams, B.E. Feist, S. Hennessey, K. Bartz, J.L. O'Donnell, M. Sheer, P.S. Levin. How much city is too much city? Biodiversity and ecosystem functions along an urban gradient at the land-sea interface in Puget Sound. Journal of Applied Ecology.

44. Stier, A.C., A.O. Shelton, J.F. Samhouri, B.E. Feist, P.S. Levin. No smoking gun? The potential roles of people, place, and environment in the loss of a portfolio effect. Journal of Applied Ecology.
45. Delgado-Nordmann, H., E. J. Ward, R. Brenner, A. H. Beaudreau, S. D. Moffitt, A. O. Shelton. Assessing long-term changes in sex ratios of Pacific herring in Prince William Sound
46. Punt, A. E., D. K. Okamoto, A. D. MacCall, A. O. Shelton, D. R. Armitage, J. S. Cleary, I. P. Davies, S. C. Dressel, T. B. Francis, P. S. Levin, R. R. Jones, H. Kitka, L. C. Lee, J. McIssac, M. R. Poe, S. Reifenstuhl, J. J. Silver, T. F. Thornton, R. Voss, J. Woodruff. When are estimates of spawning stock biomass for small pelagic fishes improved by taking spatial structure into account?
47. MacCall, A.D., T.B. Francis, D.R. Armitage, J.S. Cleary, S.C. Dressel, R.R. Jones, H. Kitka, L.C. Lee, P.S. Levin, J. McIsaac, D.K. Okamoto, M. Poe, A.E. Punt, S. Reifenstuhl, A.O. Shelton, J.O. Schmidt, J.J. Silver, M.C. Siple, T.F. Thornton, R. Voss, J. Woodruff. A heuristic model of learned migration behavior exhibits distinctive spatial and reproductive dynamics. ICES Journal of Marine Science.
48. Trochta, J.T., T.A. Branch, A.O. Shelton, D.E. Hay. The highs and lows of herring: A meta-analysis of patterns in herring collapse and recovery. Fish and Fisheries.
49. Blake, R.E., C. Ward, M. Hunsicker, A.O. Shelton, A.B. Hollowed. Environmental heterogeneity and functional redundancy structure spatial groundfish diversity patterns in the Gulf of Alaska. Ecosphere
50. Shelton, A.O, C.J. Harvey, J.F. Samhouri, K.S. Andrews, B.E. Feist, K.E. Frick, N. Tolimieri, G.D. Williams, L.D. Antrim, H.D. Berry. From the predictable to the unexpected: kelp forest and benthic invertebrate community dynamics following decades of sea otter expansion. Oecologia submitted 3/2018
51. Okamoto, D.K., M. Hessing-Lewis, J.F. Samhouri, A.O. Shelton, A. Stier, P.S. Levin, A.K. Salomon. Spatial variation in exploited metapopulations obscures risk of collapse. PNAS sub 2/108

Reports and Technical Reports

52. National Marine Fisheries Service (NMFS). 2013a. Groundfish Essential Fish Habitat Synthesis: A Report to the Pacific Fishery Management Council. NOAA NMFS Northwest Fisheries Science Center, Seattle, WA, April 2013. 107 p.
53. National Marine Fisheries Service (NMFS) 2013b. Appendix to Groundfish Essential Fish Habitat Synthesis: A Report to the Pacific Fishery Management Council. NOAA NMFS Northwest Fisheries Science Center, Seattle, WA, April 2013. 378 p.
54. Kim, M, O. Shelton, and M. Wang. 2010. A cohort correlation analysis for fishery populations with applications to Pacific Herring. Technical Report #51 of the Center for Integrating Statistical and Environmental Science, the University of Chicago

Conference Proceedings

55. Hebert, K.P. and A.O. Shelton. 2001. Red sea urchin (*Strongylocentrotus fransiscanus*) growth and mortality rates in Southeast Alaska. Proceedings of the 2001 Alaska Chapter American Fisheries Society Annual Meeting, Sitka, Alaska. pg. 44.

Book Reviews

Shelton, A.O. Review of "Modelling and quantitative methods in fisheries" by M. Haddon. The American Statistician.

SPECIAL SKILLS

SCUBA certification: NAUI basic certification, PADI Advanced Open Water Diver, PADI Rescue Diver, PADI Deep Diver, PADI Nitrox Diver, former AAUS Scientific Diver, conducted over 500 scientific dives in tropical and temperate ecosystems. Current NOAA scientific diver in good standing.

CPR/First Aid certified.

Certified Small Boat Operator: Completed U.S. Department of the Interior Motorboat Operator Certification Course June, 23-25 2014, Astoria, Oregon. Over two decades experience captaining small boats in all weather conditions.

Expert mathematical modeler: Expert in R statistical computing language, JAGS and STAN Bayesian statistical languages, and INLA statistical computing language. Experience with C++ computing language. Extensive experience writing Bayesian MCMC algorithms for both hierarchical and non-hierarchical models.

Bayesian Statistics: Two quarters of Bayesian statistical theory and methods (University of Chicago Autumn 2003, Winter 2004) and application (University of Chicago, Winter 2005). Audited at University of California, Santa Cruz: Bayesian statistics (AMS 206, Winter 2010) and Intermediate Bayesian Statistical Modeling (AMS 207, Spring 2010). Post-doctoral scholars are not allowed to officially enroll in classes at UCSC. Over eight years of practical, applied experience using Bayesian methods in fisheries and ecological contexts.

WORKSHOPS AND WORKING GROUPS

Ocean Modeling Forum: Pacific Herring Working Group. *2016-present*

NCEAS Working Group: Applying Portfolio Effects to the Gulf of Alaska Ecosystem: Did Multiscale Diversity Buffer Against the Exxon Valdez Oil Spill?" PIs: Kristin Marshall, Anne Beaudreau, Richard Brenner, Mary Hunsicker, Eric Ward, and Ole Shelton.

NCEAS Working Group on "Red flags and species endangerment: Meta-analytical development of criteria for assessing extinction risk**",** led by Robin Waples and Jeff Hutchings, *2010 - 2013*

Panelist for Puget Sound Forage Fish Study Panel. August 2013, Friday Harbor WA.

Participant in Ocean Modeling Forum. Seattle, WA. March 26-27, 2014.

Participant in Herring Summit. Richmond, BC, Canada. June, 2015.

PRESENTATIONS

Invited Seminars

Monster Jam Seminar Speaker, National Marine Fisheries Service, Northwest Fisheries Science Center, Seattle, WA, 11/3/2016

University of Washington, School of Fisheries and Aquatic Sciences, 2/24/2015

University of Washington, School of Fisheries and Aquatic Sciences, 5/23/2014

National Marine Fisheries Service, Northwest Fisheries Science Center, Newport, OR, Nov. 2013.

National Marine Fisheries Service, Northwest Fisheries Science Center, Seattle, WA, Sept. 2011.

Bamfield Marine Station, British Columbia, Canada, June 2006. "The origin and cost of male rarity in the seagrass genus *Phyllospadix"*

University of California, Santa Cruz, April 2011 "Ecological and evolutionary drivers of life-history variation in the sea: seagrass, fish, fisheries management, and conservation"

Hopkins Marine Station, Stanford University, May 2011. "Fluctuations of fish populations and the magnifying effects of fishing."

Conference Presentations

American Fisheries Society (AFS) Annual Meeting

9/2011 "Estimating the contribution of among-individual and environmental variation to variability in fish growth: Bayesian methods for von Bertalanffy growth.

9/2015 Historical trends and drivers of eelgrass in Puget Sound (1972-2012)

Salish Sea Conference 2014, Seattle, WA.

5/2014 "Herring reproductive success in Puget Sound: spawning habitat availability and quality, spatial variation in egg survival, and the specter of habitat limitation"

American Fisheries Society (AFS) Annual Meeting

9/2011 "Estimating the contribution of among-individual and environmental variation to variability in fish growth: Bayesian methods for von Bertalanffy growth.

9/2015

Ecological Society of America (ESA) annual meeting, oral presentations:

8/2007 "The origin and cost of male rarity in *Phyllospadix scouleri"*

8/2008 "Sex, clones, and demography: reproductive allocation in two intertidal seagrasses"

Society for the Study of Evolution (SSE) annual meeting, oral presentations:

6/2008 "The origins and consequences of male rarity in an intertidal seagrass"

6/2010 "Detecting cryptic sex differences in pacific herring life-histories and understanding their implications for fisheries"

Western Society of Naturalists (WSN) annual meeting, oral presentations:

11/2006 "Skewed sex ratios, pollen limitation, and reproductive failure in the seagrass *Phyllospadix"*

11/2007 "The origin and cost of male rarity in *Phyllospadix scouleri"*

11/2009 "Do males matter? Population effects of male rarity in surfgrass (*Phyllospadix*)"

11/2015 "Historical trends and drivers of nearshore vegetated habitats: 40 years of eelgrass and kelp in the Salish Sea (1972-2012)".

Hopkins Marine Station, Oceans colloquium, Pacifica Grove, California:

4/2010: "Herring v. Whales: Monte Carlo methods for uncertain food webs"
Rancho Marino Symposium on Quantitative Ecology, Cambria, California:
9/2009 "Growth, connectivity and density dependence in SE Alaska herring"
9/2010 "Real fish populations do fluctuate, but not because of nonlinear dynamics"

ACADEMIC SERVICE

Pacific Fisheries Management Council, Scientific and Statistical Committee Member
2016-present

Graduate student committee member
John Trochta, University of Washington, School of Aquatic and Fisheries Sciences.

Monster Jam Seminar Series Organizer Winter 2014. NWFSC.

External Reviewer for Department of Fisheries and Oceans, Canada: "Centre for Science Advice Pacific's (CSAP) Regional Peer Review (RPR) meeting on Stock Assessment and Management Advice for BC Pacific Herring: 2014 Status and 2015 Forecast" in Nanaimo, British Columbia, September 3-4, 2014.

Peer-Reviewer for: *Ecology, Ecological Applications, Journal of Animal Ecology, The American Naturalist, Hydrobiologia, Ecology Letters, Methods in Ecology and Evolution, Conservation Letters, Bulletin of Marine Science, Conservation Letters, Marine Ecology Progress Series, Fish and Fisheries. Journal of Applied Ecology, Proceedings of the Royal Society Series B biological sciences, ICES Journal of Marine Science, Ecological Monographs, Ecography, Journal of Ecology, Proceedings of the National Academy of Sciences (USA), Fisheries Oceanography*

Society Memberships: *Ecological Society of America, Western Society of Naturalist, American Society of Naturalists, American Fisheries Society*

Student Representative for University of Chicago, Dept. of Ecology and Evolution Faculty Search *Fall 2007*

Student participant in University of Chicago review of Dept. of Ecology and Evolution. *April 2009*

Public Outreach:
Hood Canal marine community ecology tutorial. August 2013.

Supervisior for postdoctoral researchers at University of Washington and NWFSC
James O'Donnell 2016-2018
Benjamin Nelson 2017-2018
Lewis Barnett 2016-
Adrian Stier 2015-2017

Supervisor for University of Washington Capstone Students, Program on the Environment
2013: *Ellie Canade, Lise Ferguson, Hannah Fotherby.*
2014: *Ben Au Yong*

Supervisor for College Interns
2014 – *Daniela Ramos, Andrea Wong, Joe Donohoe (all University of Washington).*

2014 – *Summer Interns: Emily Buckner (Carleton College), Emma Garrison (U. Miami), Andrea Wong (U. Washington), Mira Klein (Wesleyn College).*
2015 *– Andrea Wong, Jacqui Levy (U. Washington)*
2015 *– Summer Interns: Anastasia Konefal (Smith College)*

TEACHING AND MENTORING

Guest Lecturer:

Marine Botany, University of California, Santa Cruz *2010*
Ecology of Reefs, Mangroves, and Seagrasses, University of California, Santa Cruz *2010*
Marine Conservation Biology, University of California, Santa Cruz *2009*
Environmental Ecology, University of Chicago *2008*
Marine Botany, University of Washington, Friday Harbor Laboratories *2007*
Marine Ecology, University of Chicago, *2007*
Ecological Applications to Conservation Biology, University of Chicago *2004*

Teaching Assistant and Tutorial Leader

University of Chicago teaching assistant *2004-2008*
Environmental Ecology, Marine Ecology, Ecological Applications to Conservation Biology. ***Nominated for University of Chicago's Booth teaching award****. 2004*
Northwestern University Tutorial Leader. Science and Engineering Research and Teaching Synthesis *2007*
Brown University teaching assistant *2001-2002*
Introductory Biology; Tutored for *Introductory Biology* and *Principles of Genetics*

Mentoring

Northwestern University Tutorial Leader. Science and Engineering Research and Teaching Synthesis *2007*
Volunteer judge for local Chicago high school science fairs *2003-2007* and Chicago city-wide science fair *2006*
Volunteer outdoor leadership mentor for high school students, Providence, RI *199*9
Volunteer for Providence Science Outreach, Providence, RI *1999-2001*

Press

"A bright spot in Puget Sound: Sealife-nurturing eelgrass beds are holding steady"
Seattle Times 1/4/2017